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ABSTRACT

Data were collected between 1965 and 1971 concerning the physical status and school achievement of a nationally representative sample of Swedish pupils comprised of 360 girls and 380 boys. Pupils were followed from grade 3 through grade 9 of compulsory school. For boys, similar data were collected in connection with military enrollment. Main findings of the survey, concerning variables such as sex differences, physical maturity, mental performance, achievement levels, and social background, are reported. In view of the survey findings, additional studies were planned (1) to investigate more closely the connections between the physical maturity and cognitive levels of pupils in relationship to their social background; (2) to study pupils' self-perceptions in relationship to their physical maturity, cognitive level, and social background; and (3) to investigate the knowledge and views of children and young persons concerning biological development. In pursuit of the first two aims mentioned above, a sample of about 300 pupils in grades 4, 6, and 8 was investigated in two socioeconomically different municipalities outside Stockholm. The third aim was addressed in the course of an international study involving Australia, Britain, North America, and Sweden. Main findings of the international study are reported. (RH)

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Title of project: Maturity levels and selfperception (MOS)

Project no.: 6090

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NEWSLETTERS 1979, 1980, 1981 and 1982.

No.	Title
1979:1	Social segregation in comprehensive schools in Sweden
1979:2	Pedagogics and the school environment
1979:3	Elementary School Studies for Adults
1979:4	The NBE and School of Education Development Study (SLU)
1979:5	School-home-leisure
1979:6	List of Projects 1979/80
1979:7	Internationalization in popular education (INFA)
1980:1	Pupils' thinking and course requirements in science teaching (EKNA)
1980:2	Marks and assessments in school
1980:3	Continuous admissions at AMU centres (SINAMU)
1980:4	Follow-up of school management training (USU)
1980:5	Special pedagogics in pre-school education (SIF)
1980:6	Problem-oriented co-operation between teachers, pupils and parents (POSLEF)
1980:7	List of Projects 1980/81
1980:8	Evaluation of an experimental SYO organization
1980:9	Models for the bilingual instruction of immigrant children
1981:1	Integration of the profoundly deaf and severely hearing impaired in ordinary classes
1981:2	The PANG Project. Process Analysis of Non-Grading.
1981:3	Preconditions of change in schools (FISK)
1981:4	Social segregation in comprehensive schools in Sweden.
1981:5	H.G. Macintosh. Report on a visit to Sweden.
1981:6	Learning problems of junior level children - a Nordic joint research project
1981:7	Needs-oriented language learning for adults (BISVUX)
1981:8	List of projects 1981/82
1981:9	Teaching processes - world conception and Educational Vocational Guidance (SIA-SYO)
1981:10	Swedish science subjects in an international perspective: curriculum, teachers and pupils (SNILLE)
1982:1	Basic skills in a longterm perspective (BAS)
1982:2	Sign language and the learning of Swedish by deaf children (Project TSD)
1982:3	Preparedness for the future as an educational objective in upper secondary school

1. BACKGROUND TO THE MOS PROJECT

The questions with which the MOS project is concerned mainly arose when findings were presented from a sub-study forming part of the previous SLU project (the NBE and Institute of Education Development Study). One of the aims of that sub-study was to elucidate possible connections between schoolchildren's physical development/maturity and their school performance.

Data concerning the physical status (height, weight, secondary sexual characteristics and first menstruation) and school achievement (e.g. standardized achievement tests in mathematics and Swedish, ability tests and marks) of a group of pupils comprising 360 girls and 380 boys were collected between 1965 and 1971 with the assistance of school nurses and teachers. These pupils were followed from grade 3 up to and including grade 9 of compulsory school. In the case of the boys, similar data were collected later in connection with military enrollment (age 17-19). The pupils were randomly selected from 40 different towns throughout Sweden, and the survey can therefore be considered nationally representative of Swedish urban children but not of children born and living in rural areas.

More specifically, the following questions were successively dealt with in the course of the sub-study:

- How did these pupils develop physically during the period concerned?
- Did these children develop or mature, physically speaking, more rapidly than children of previous generations?
- Were there any differences in terms of physical development and maturity between pupils from different social classes or different parts of the country?

- What were the physical characteristics of pupils who matured early and late respectively?
- Were there any connections between the pupils' physical and mental development between the ages of 9 and 14?
- Was there a mental spurt resembling the spurt in physical development during puberty?
- Were pupils who matured early in the physical sense generally more successful in knowledge and ability tests than pupils who matured late?

The results have been presented in various reports, articles and papers; see LIST OF PUBLICATIONS, page 8. The main survey findings were as follows.

- In a compulsory school year there was an average difference of about two years in the physical maturity of girls and boys and a difference of about seven chronological years between the earliest girls and the latest boys. (Physical maturity was measured according to the age at which height increase in cm/year was greatest, see figure 1.)
- The pupils in this survey were taller, matured earlier and completed their puberty more rapidly than pupils of the same ages during the 1880s and 1940s.
- In contrast to previous surveys, no differences could be observed between social classes in terms of height, weight or physical maturity.
- Both girls and boys in the south of Sweden matured physically about six months later than young persons in central Sweden.
- Pupils who mature early tend on average to be taller, heavier and more advanced in terms of various physiological functions up to the age of 16 for girls and 18 for boys.

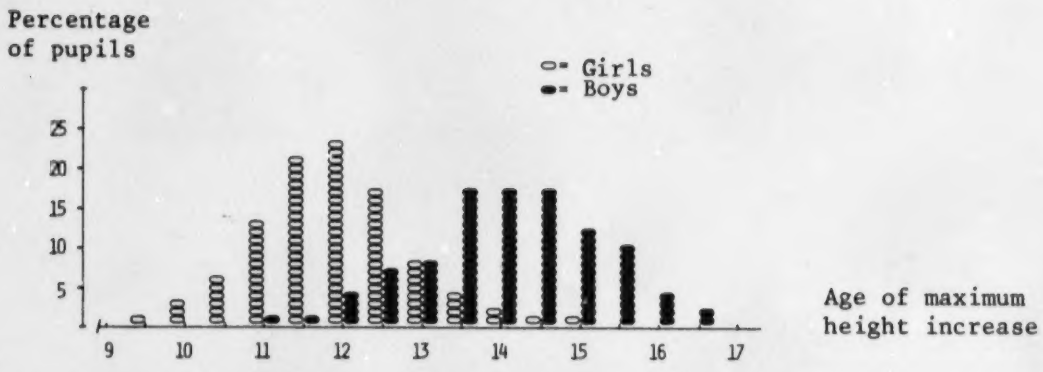

Figure 1. Percentage age distribution of maximum height increase. No. girls = 357 and no. boys = 373. (From Lindgren, 1978b)

- The mental performance of the girls increased considerably between grades 4 and 5, while that of the boys increased less considerably between grades 5 and 6.
- The greatest increase in mental performance among girls whose physical maturity was early or average came between grades 4 and 5, while the heaviest increase for the late girls came between grades 6 and 7.
- The heaviest increase in performance among boys whose physical maturity was early came between grades 5 and 7, while average and late boys did not display a maximum increase in performance during this period.
- The girls generally displayed a somewhat higher achievement level in grades 5 and 6 only.
- Social background was more strongly related than late or early physical development to results in knowledge tests.
- Pupils whose physical development came early did better than late developers, especially in language tests, <u>but this only applied in social class III</u>.
- Boys from social class III whose physical development came late had the lowest test results from grade 3 to grade 7 inclusive, and they

tended far less than early boys in this social class to go on to higher theoretical studies, although the results with intelligence tests in connection with military enrollment (age 17-19) revealed no differences between late and early developers in this social class.

2. AIMS OF THE MOS PROJECT

In view of the results obtained in the above-mentioned SLU sub-study, the main purposes of the MOS project are as follows.

- To investigate more closely the connections between the physical maturity and cognitive level of pupils in relation to their social background.
- To study the pupils' selfperception in relation to their physical maturity, cognitive level and social background.
- To investigate the knowledge and views of children and young persons concerning biological development - an additional purpose added in the course of the project.

In pursuit of the first two aims mentioned above, a sample of pupils was investigated in two socio-economically different municipalities outside Stockholm. This sample comprised about 300 pupils in grade 4, grade 6 and grade 8, and data were collected concerning their physical maturity, cognitive level, selfperception and social background. Physical maturity was determined by estimates of stages in the development of secondary sexual characteristics according to the Tanner-Whitehouse method; see Westin-Lindgren, 1982a. Cognitive level was determined by means of various tests, including Björn Sandgren's test "Similarities". The pupils' selfperception (in such terms as bodily constitution, physical activity and capacity, school achievement and social relations) were studied by various methods. Supplementary data concerning the pupils' leisure activities, plans for the future, school problems if any etc. were collected by means of pupil

questionnaires and interviews of pupils and teachers. The collection of data was concluded during the second half of the spring term 1981.

The aim of studying the knowledge and opinions of children and young persons concerning the concept of biological development materialized in the course of the project as a Swedish sub-study forming part of an international project headed by Professor Goldman of La Trobe University, Melbourne, Australia. This international study, covering Australia, Britain, North America and Sweden, concerned children and young persons aged 5-15 years, for which reason, and also in order to facilitate comparisons between the countries, an additional pupil sample had to be made. Thus an interview survey involving some 200 girls and boys aged 5, 7, 9, 11, 13 and 15 years was conducted in 1980. The interview contained questions concerning birth, sexual differences, sex rôles, personal relations and aging among other matters. The aim was to analyze the answers given by the children and young persons to the various questions in the interviews in order, among other things, to study the levels of intellectual development (cognitive levels) exhibited by these children and young persons when trying to understand the concept of biological development, and also to study the ages at which these levels materialized. A study was also made of possible differences in thinking between girls and boys, social classes and various countries. The last mentioned of these comparisons was particularly interesting because Sweden is the only one of the four participating countries where sex education and instruction concerning personal relations are compulsory in schools.

Of these mutually independent surveys, mutually independent, that is,(in terms of pupil samples), it is only the final results of the international study that have been printed so far (Goldman & Goldman, 1981; 1982). Some of the main findings are presented below. The results of those parts

of our survey concerning connections between the physical maturity of pupils and their cognitive level in relation to social background and concerning their selfperception in relation to their physical maturity, cognitive level and social background will be presented later in 1982.

3. SOME FINDINGS FROM A SUB-STUDY

The main findings resulting from the international study were that different cognitive developmental stages or levels (according to Piaget's theory) could be discerned in the thinking of children and young persons on the subject of biological or sexual development, and that Swedish pupils had a more extensive knowledge of this subject than pupils from the other countries. The latter finding has been attributed to cultural differences in the view taken of sex and personal relations and above all to instruction in schools.

Some other findings were as follows.

- As regards knowing and describing where babies come from (without being able directly to understand and explain the matter), the children in the other countries could not pass this test until the age of about 11, while the Swedish children passed it when they were only 7-9 years old.
- Similarly, Swedish children already knew when they were 9 years old that the period of gestation was 8-10 months, while the children in the English-speaking countries did not generally know this until they were 11. Girls were generally apprised of this fact earlier than boys.
- Faced with the difficulty of what decided whether a baby is going to be a boy or a girl, the Swedish children were first able to answer in terms of x and y chromosomes at the age of 13, while children in

the other countries could not do so until they were 15.

- Taking the survey as a whole, 5% of the girls would rather have been of the opposite sex, but this applied to hardly any children or young persons in Sweden. No less than 25% of 13-year-old girls in England wanted to be boys.

- Asked why people get married, most children and young persons seemed to have a romantic attitude to marriage, i.e. "People get married because they love each other". Unlike the pupils in the other countries, the Swedish pupils did not seem to regard matrimony as a necessary prelude to procreation.

- The pupils saw hardly anything positive about growing old. Only the 5-year-olds saw anything positive about old people. Otherwise the pupils regarded old age as a period of increasing debility, senility and illness, with death coming as the end.

- Asked whom they would turn to if they wanted to know anything about where babies come from or about sex generally, most pupils (the boys included) said they would ask their mothers . Hardly anybody from the age of 9 would ask their teachers.

- Asked what was the most important thing that a girl/boy needed to know about sex and personal relations, the girls mostly replied "about menstruation", and the boys "how sexual intercourse is performed".

The characteristics of the Swedish children and young persons with the greatest knowledge and understanding of the subject field were that they lived in large families with siblings of the opposite sex, had gainfully employed mothers and were above average in terms of marks. Paternal occupations, on the other hand, did not have any effect on the pupils' answers, whereas otherwise they are usually connected with pupils' achievements in school cognitive tests. Possibly this is because sex education

out of school was provided by mothers; and they were the people one went to with one's questions.

4. SUMMARY

The MOS project involves three different surveys of the biological and/or mental development of children and young persons in relation to their social background. These studies are above all aimed at improving our knowledge of the factors which influence or can influence pupils' school achievements and motivation for continued studies. The results obtained so far suggest that physical maturity, as well as the pupil's social background, is an important factor in this connection. Preliminary findings suggest that the pupil's selfperception is also an important factor in this connection. The complete findings may form the basis on which to develop teaching materials of various kinds for use in teacher education and teacher INSET, and they may also provide documentation on which to base a discussion of possible curative measures in schools.

LIST OF PUBLICATIONS

Goldman, R. and Goldman, J. (1981). Children's conceptualisation of development. Report from La Trobe University in Melbourne, Australia.

Goldman, R. and Goldman, J. (1982). Children's Sexual Thinking. London: Routledge & Kegan Paul.

Hansson, G. and Lindgren, G. (1977). Schools - an impediment to maturity? Nordisk tidskrift för specialpedagogik, 2, pp. 112-122. (In Swedish)

Lindgren, G. (1975). Puberty and psychosocial status I. Physical development and maturity during puberty - variable patterns of development. Report no. 4. Stockholm: Department of Educational Research, Institute of Education. (In Swedish)

Lindgren, G. (1976). Height, weight and menarche in Swedish urban schoolchildren in relation to socio-economic and regional factors. Annals of Human Biology, 3, pp. 501-528.

Lindgren, G. (1977/78). Physical development of Swedish schoolchildren. Offprint från Vår Näring, no. 4/1977, no. 1/1978 and no. 2/1978. (In Swedish)

Lindgren, G. (1978a). Physical development and maturity in a long-term perspective. Biologen, 2, pp. 37-41, 45. (In Swedish)

Lindgren, G. (1978b). Growth of schoolchildren with early, average and late ages of peak height velocity. Annals of Human Biology, 3, pp. 253-267.

Lindgren, G. (1979). Peak velocities in height and mental performance. A longitudinal study of schoolchildren aged 10-14 years. Annals of Human Biology, 6, pp. 559-584.

Ljung, B.-O., Bergsten-Brucefors, A., and Lindgren, G. (1974). The secular trend in physical growth in Sweden. Annals of Human Biology, 1, pp. 245-256.

Westin-Lindgren, G. (1979a). Physical and mental development in Swedish urban schoolchildren. Studies in Psychology and Education. No. 5. Lund: Liber.

Westin-Lindgren, G. (1979b). Physical and mental development in Swedish urban schoolchildren related to social background. Paper presented at the Second International Congress of Auxology, 10-15 Dec. in Havana, Cuba.

Westin-Lindgren, G. (1980a). Physical development and maturity. Published in Boken om hälsan. Stockholm: Liber. (In Swedish)

Westin-Lindgren, G. (1980b). Physical and physiological characteristics of boys 17-19 years of age related to social background. Paper presented at Third Biennial Conference: Human Adaptation, Oct. 1980, in Sydney, Australia. (In press)

Westin-Lindgren, G. (1980c). Achievement and mental ability of boys in relation to physical maturity and social background. Paper presented at Third Biennial Conference: Human Adaptation, Oct. 1980, in Sydney, Australia. (In press)

Westin-Lindgren, G. (1981a). Relation between secular trends in height growth, weight increase and age at menarche in Swedish urban youth. Paper presented at the EUSUHM Congress on Prevention and Health Care Throughout Childhood and Adolescence, Aug. 17-20, 1981, in Amsterdam, the Netherlands. (In press)

Westin-Lindgren, G. (1981b). Physical growth in Swedish urban youth related to socio-economic strata. (Croissance physique d'enfants de villes Suédoises en relation avec leur statut socio-economique). Paper presented at XV^{e} COLLOQUE ANTHROPOLOGISTES DE LANGUE FRANÇAISE, Oct. 1981, In Brussels, Belgium. (In press)

Westin-Lindgren, G. (1982a). Physical development and maturity. Published in Boken om skolbarns utveckling. Ed. Jon Naeslund. Liber Utbildningsförlaget. (In Swedish)

Westin-Lindgren, G. (1982b). Sexual development and personal relations. Published in Boken om skolbarns utveckling. Ed. Jon Naeslund. Liber Utbildningsförlaget. (In Swedish)

Westin-Lindgren, G. (1982c). Achievement and mental ability of physically late and early maturing schoolchildren related to their social background. Journal of Child Psychology and Psychiatry, 22. (In press)

Graningestudien - Stockholm 1981